ORTHOGONAL NORMALIZATION FOR A RADIO FREQUENCY INTEGRATED CIRCUIT

ABSTRACT OF THE DISCLOSURE

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A radio frequency integrated circuit includes a transmitter section, and a receiver section. The receiver section includes a low noise amplifier, down conversion module, an orthogonal-normalizing module, and a baseband processor. The low noise amplifier is operably coupled to amplify the inbound RF signals to produce amplified inbound

10 signals. The down conversion module is operably coupled to convert the amplified inbound RF signals into baseband in-phase components and baseband quadrature components. The orthogonal normalizing module is operably coupled to obtain a 1st and 2nd coefficients that are based on at least one of power of the baseband in-phase components, power of the baseband quadrature components, and/or cross-correlation

15 between the baseband in-phase component and baseband quadrature components. The orthogonal normalizing module then normalizes an orthogonal relationship between the in-phase components and quadrature components based on the 1st and 2nd coefficients to produce normalized in-phase components and normalized quadrature components.